

What is claimed is:

1. A method, comprising:
  - arranging a plurality of light beams according to a parallel configuration;
  - diverting a first portion of said parallel light beams to a first imaging device;
  - propagating a remaining portion of said parallel light beams through a medium;
  - diverting a first portion of the propagated parallel light beams to a second imaging device; and
  - determining an optical loss parameter using imaging data provided by said first and second imaging devices.
- 15 2. The method of claim 1, wherein said imaging devices include Indium Gallium Arsenide (InGaAs) imaging surfaces.
3. The method of claim 1, further comprising:
  - adapting beam steering parameters in a manner tending
  - 20 to reduce optical loss.
4. The method of claim 3, wherein said beam steering parameters include mirror alignment parameters, wherein at least one mirror is used to propagate said remaining portion
- 25 of said parallel light beams through said medium.
5. The method of claim 1, wherein said medium comprises a free-space medium.
- 30 6. The method of claim 4, wherein said steps of determining said optical loss parameter and adapting said beam steering parameters are iteratively performed until said determined optical loss parameter is less than a threshold level.
- 35 7. The method of claim 1, wherein each of said first and second imaging devices include an imaging surface defined by a plurality of pixels, each of said light beams within said

plurality of light beams optically exciting at least one pixel on said imaging surfaces.

8. The method of claim 7, wherein:

5 the optical excitements levels of pixels within said imaging surface of said first imaging device are related to an input power applied to said medium; and

10 the optical excitements levels of pixels within said imaging surface of said second imaging device are related to an output power received via said medium;

15 said optical medium having associated with it an insertion loss determined using said first and second imaging device optical excitements levels.

15 9. The method of claim 1, wherein each of said first and second imaging devices comprises a respective imaging surface, said imaging surfaces comprising respective arrays of picture elements, each of said picture elements providing an output level proportional to an excitation level induced 20 by received optical energy.

(10) A method for determining a loss parameter of an optical device, comprising:

25 imparting a first portion and a remaining portion of a plurality of substantially parallel light beams to, respectively a first imaging device and said optical device, said optical device providing a propagated plurality of substantially parallel light beams at an output;

30 imparting a first portion of said propagated plurality of substantially parallel light beams to a second imaging device; and

determining an optical loss parameter using imaging data provided by said first and second imaging devices.

35 11. The method of claim 10, wherein said imaging devices include Indium Gallium Arsenide (InGaAs) imaging surfaces.

12. The method of claim 10, wherein each of said first and second imaging devices include an imaging surface defined by a plurality of pixels, each of said light beams within said plurality of light beams optically exciting at least one 5 pixel on said imaging surfaces.

13. The method of claim 12, wherein:

the optical excitement levels of pixels within said imaging surface of said first imaging device are related to 10 an input power applied to said optical device; and  
the optical excitement levels of pixels within said imaging surface of said second imaging device are related to an output power received via said optical device;  
said insertion loss being determined using said first 15 and second imaging device optical excitement levels.

14. The method of claim 1, wherein each of said first and second imaging devices comprises a respective imaging surface, said imaging surfaces comprising respective arrays 20 of picture elements, each of said picture elements providing an output level proportional to an excitation level induced by received optical energy.

15. The method of claim 10, wherein:

25 each of said first and second imaging devices include an imaging surface defined by a plurality of pixels, each of said light beams within said plurality of light beams optically exciting respective pluralities of pixels;  
said loss parameter being determined by comparing the 30 optical energy imparted to said pluralities of pixels of said second imaging device pixels to the optical energy imparted to said respective pluralities of pixels of said first imaging device.

35 16. The method of claim 15, wherein said comparison is adapted according to the relative percentage of total optical energy imparted to said first and second imaging surfaces.

17. A power monitoring apparatus, comprising:  
a first imaging device, for receiving a first portion  
of optical energy supplied by a plurality of parallel light  
beams and responsively providing a first indicium of  
received optical energy;  
a steering device, for causing the propagation through  
a medium of a remaining portion of said optical energy  
supplied by said plurality of parallel light beams; and  
10 a second imaging device, for receiving at least a first  
portion of the optical energy propagated through said medium  
and responsively providing a second indicium of received  
optical energy;  
said first and second indicia of received optical  
15 energy being sufficient to determine an optical loss  
parameter associated with said medium.

18. The apparatus of claim 17, wherein said imaging devices  
include Indium Gallium Arsenide (InGaAs) imaging surfaces.

20 19. The apparatus of claim 17, wherein said steering device  
is adapted in response to a determined optical loss  
parameter associated with said medium.

25 20. The apparatus of claim 17, wherein said steering device  
comprises a micro-electromechanical system (MEMS)-based  
mirror.

21. The apparatus of claim 20, further comprising:  
30 a plurality of MEMS-based mirrors forming a MEMS-based  
mirror array, each mirror within said MEMS-based mirror  
array having steering parameters adapted in response to  
respective determined optical loss parameters associated  
with the propagation of optical energy through said medium.